

Fig. 1

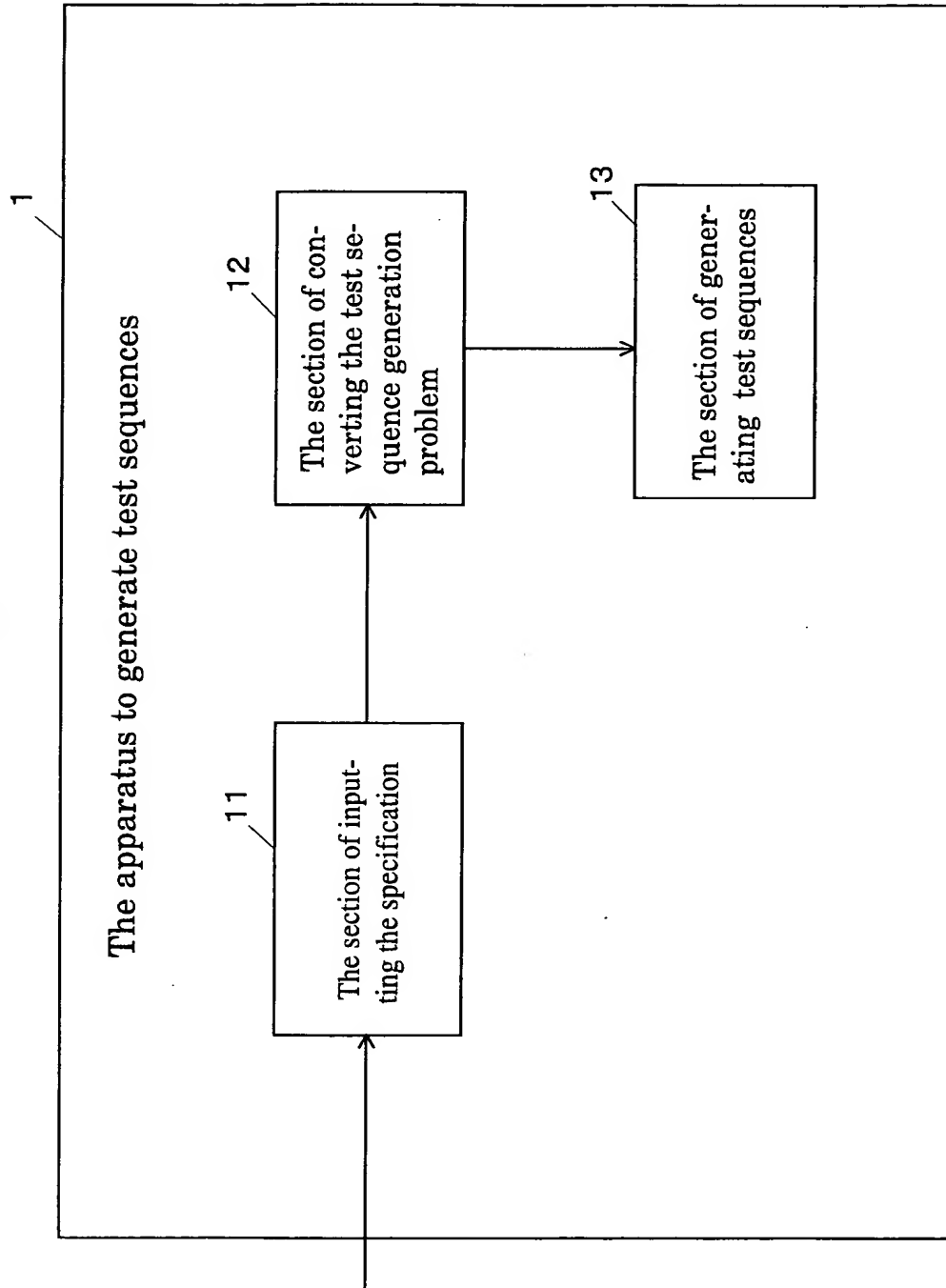
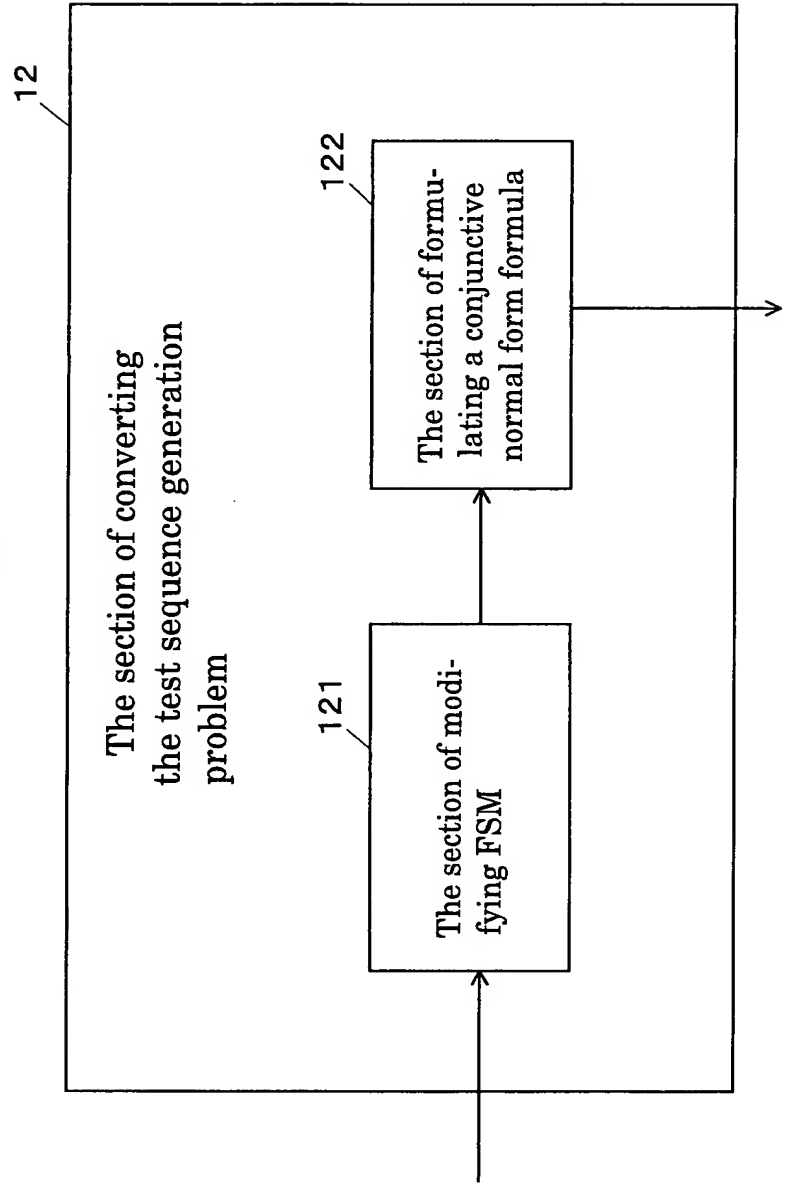


Fig. 2



REPLACEMENT SHEET

Fig. 3

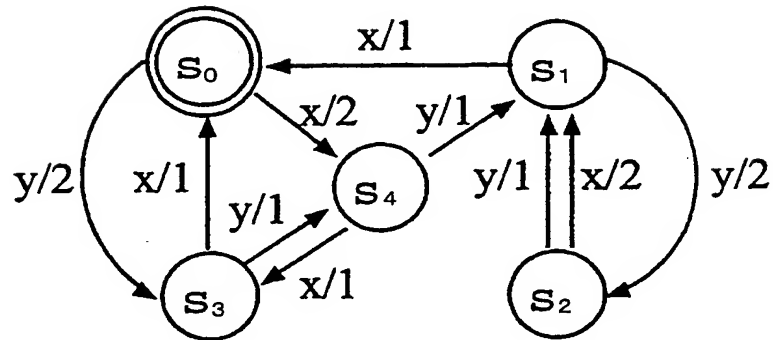
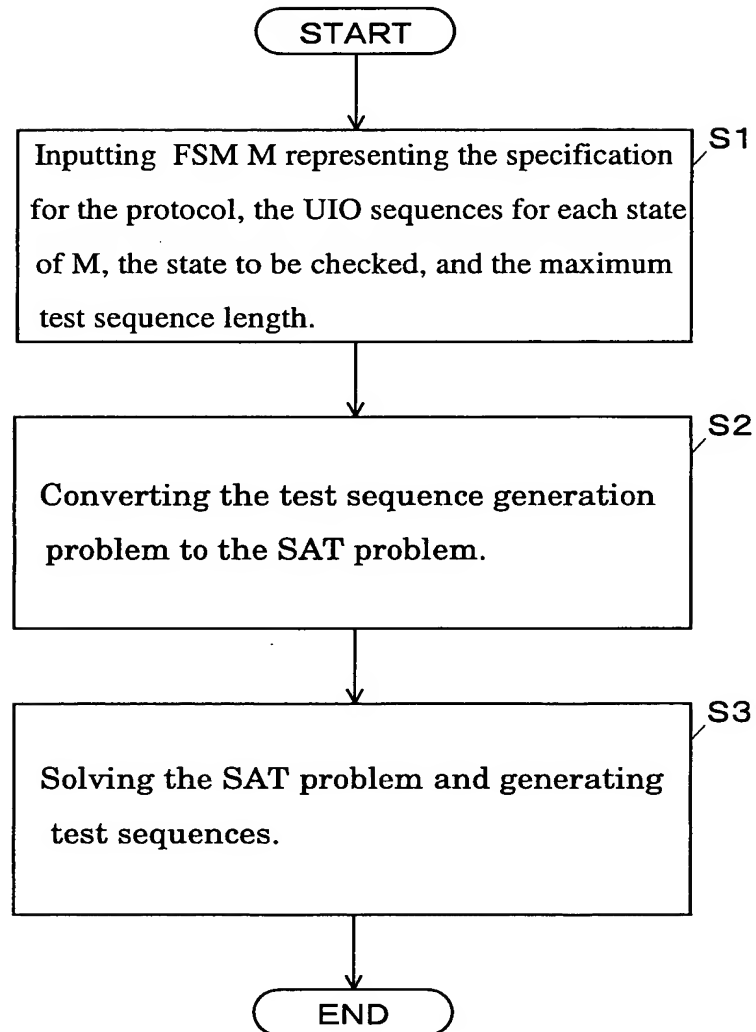


Fig. 4

state(s_i)	UIO sequence
s_0	$(y/2)(x/1)$ $(x/2)(y/1)$
s_1	$(y/2)(x/2)$
s_2	$(x/2)(y/2)$
s_3	$(y/1)(y/1)$
s_4	$(x/1)(y/1)$

REPLACEMENT SHEET

Fig. 5



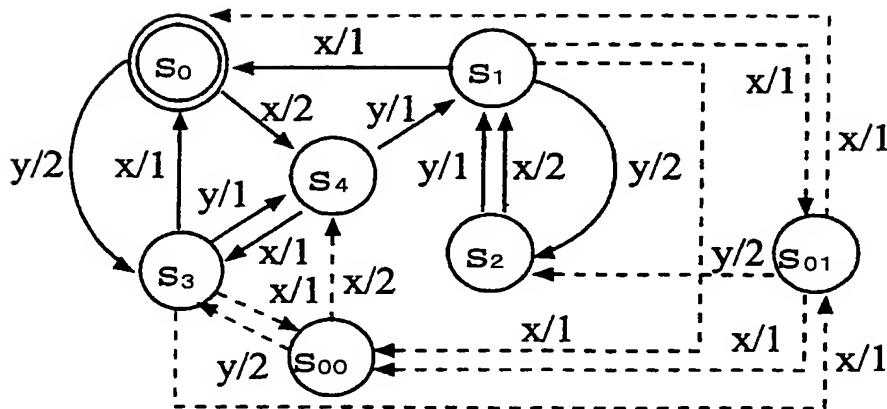
REPLACEMENT SHEET

Fig. 6

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1   $H' = \emptyset, \quad I' = \emptyset$ 
2  for  $s_{ij} \in S'$  {
3      if  $i == 0$  then  $I' = I' \cup \{s_{ij}\}$ 
4      for  $s \in S \cup S'$  {
5          if  $(s, s_i, x, y) \in H \cup H'$  then
6               $H' = H' \cup (s, s_{ij}, x, y)$ 
7          if  $(s_j, s, x, y) \in H \cup H'$  then
8               $H' = H' \cup (s_{ij}, s, x, y)$ 
9      }
10 }
```

Fig. 7



REPLACEMENT SHEET

Fig. 8A

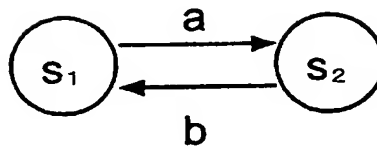
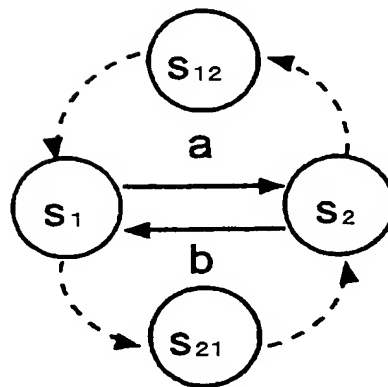


Fig. 8B



REPLACEMENT SHEET

Fig. 9A

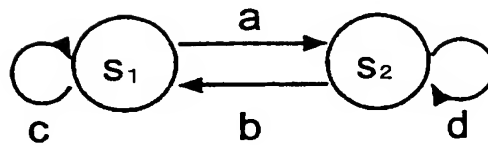
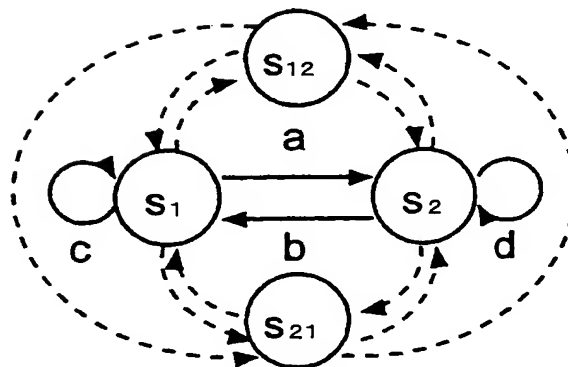
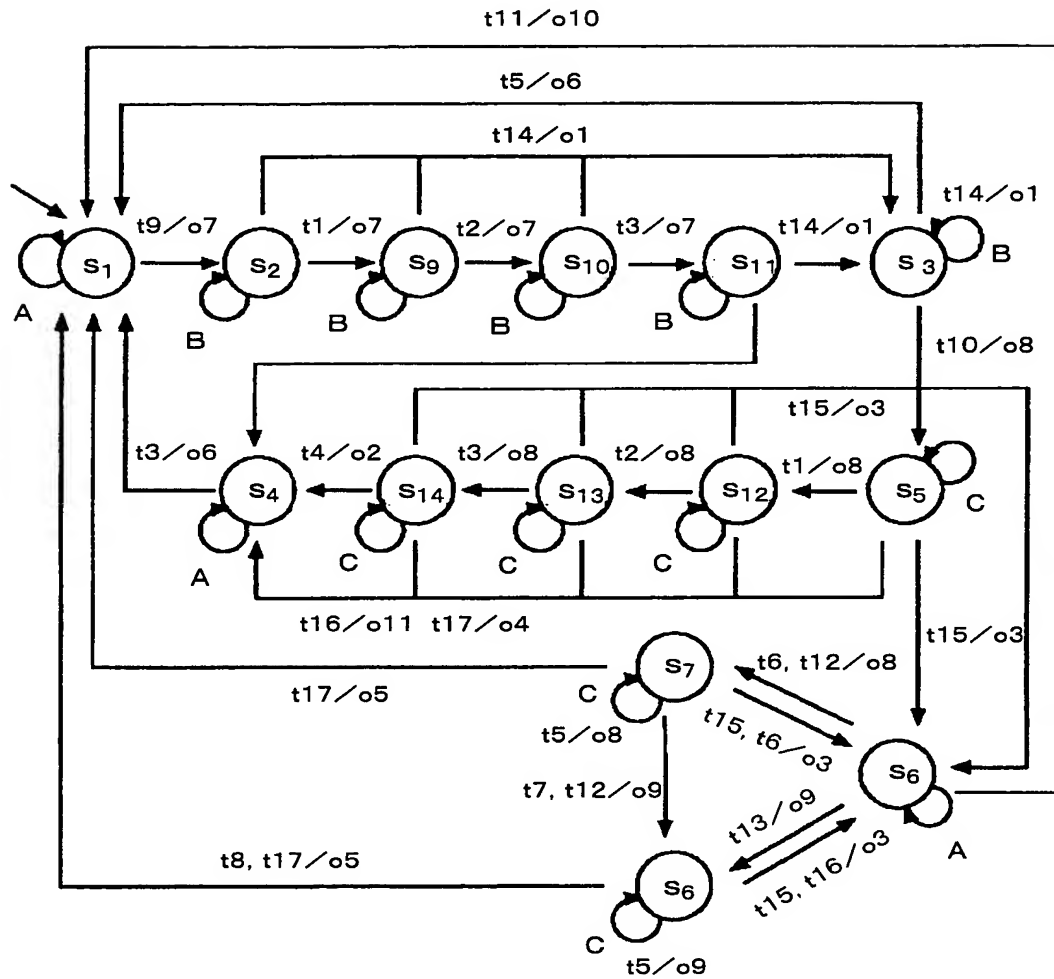


Fig. 9B



REPLACEMENT SHEET

Fig. 10



A: t14, t15, t16, t17/null

B: t15, t16, t17/null

C: t14/null

REPLACEMENT SHEET

Fig. 11

	the number of variables	the number of clauses	the length of test sequence
Experiment 1	24	77	15
Experiment 2	41	210	15
Experiment 3	21	72	13
Experiment 4	33	171	13

Fig. 12

the number of UIO se- quences	the number of variables	the number of clauses	the time to gener- ate logical formula (second)	the time to exe- cute SAT solver (second)
18	422	6668	0. 02	0. 37
14	369	5137	0. 01	0. 23
28	482	9960	0. 02	0. 70
42	653	17996	0. 03	2. 40

REPLACEMENT SHEET

Fig. 13

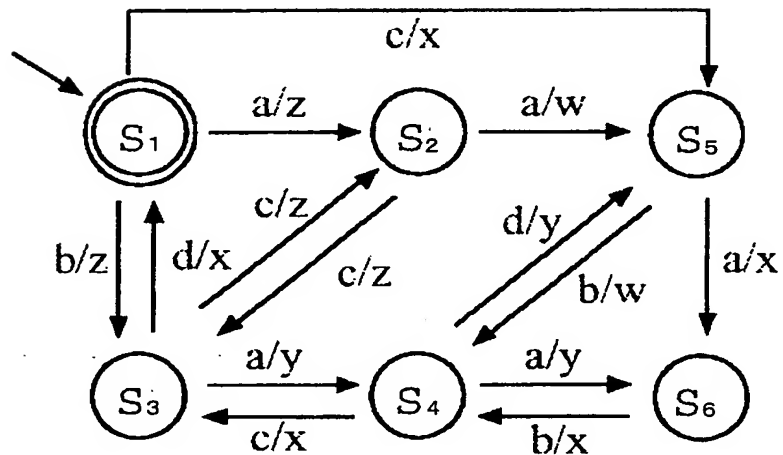
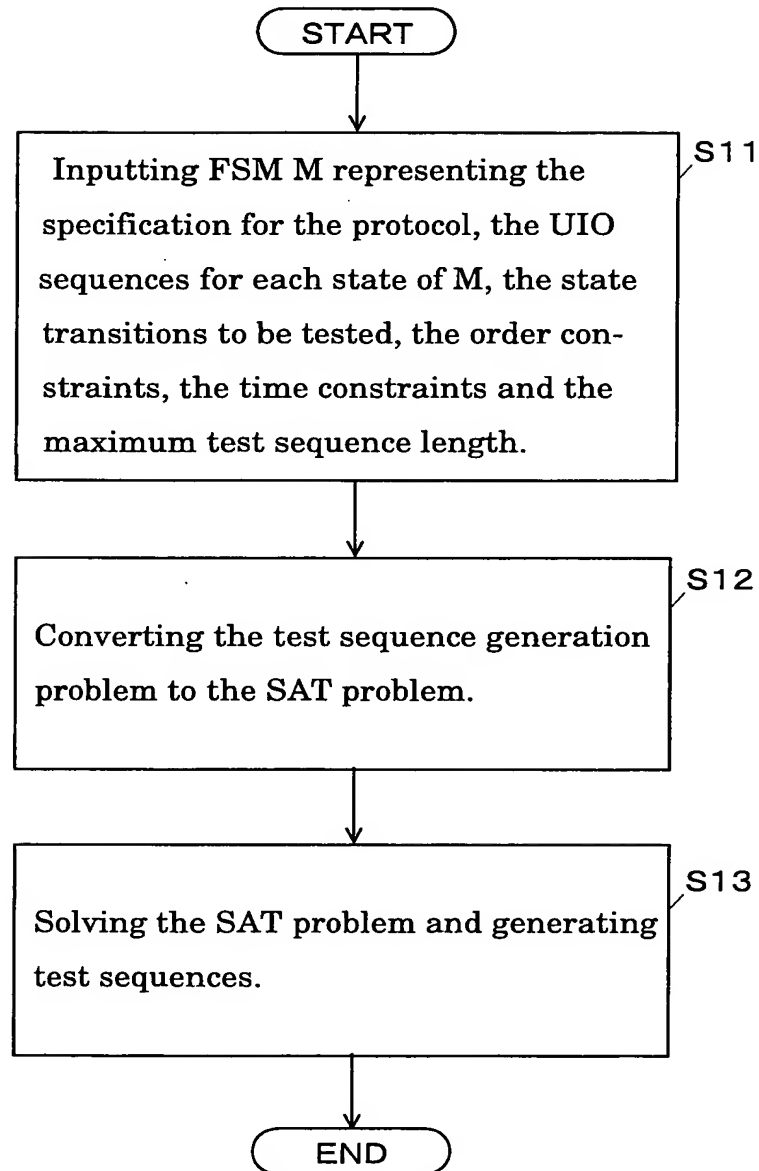


Fig. 14

state(s_i)	UIO sequence
s_1	(a/z)
s_2	(a/w)
s_3	(a/y) (a/y)
s_4	(a/y) (b/x)
s_5	(a/x)
s_6	(b/x)

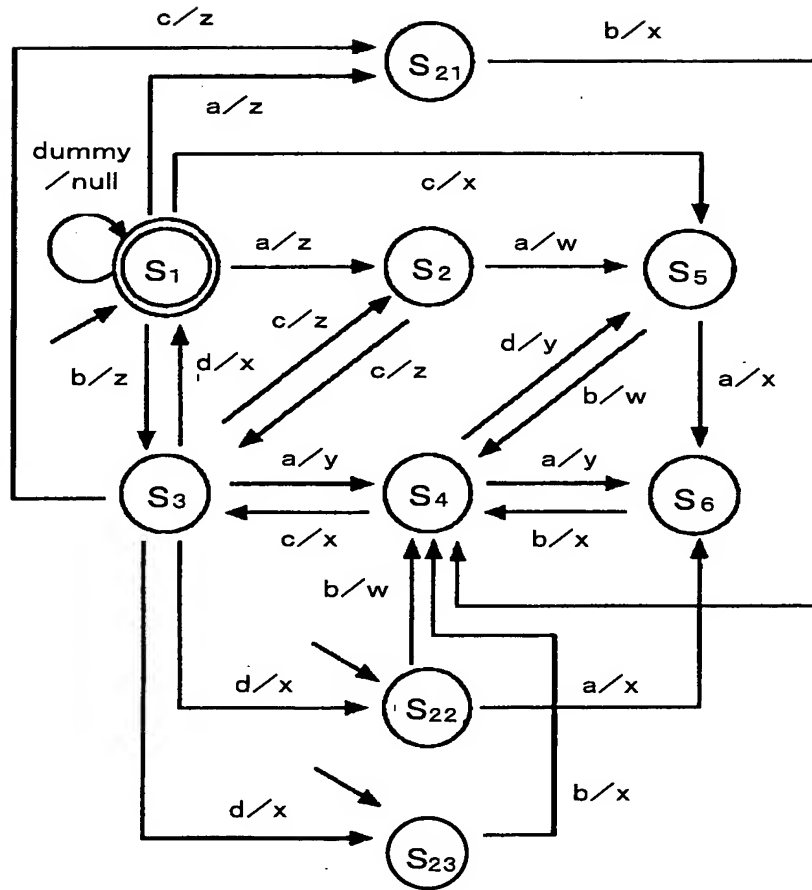
REPLACEMENT SHEET

Fig. 15



REPLACEMENT SHEET

Fig. 16



REPLACEMENT SHEET

Fig. 17

the number of subsequence	the length of sequence	the number of variables	the number of clauses	execution time
30	31(122)	1307	28879	6.766
45	57(202)	3270	96976	19.766
60	62(248)	4473	166072	48.953
70	75(295)	6169	260095	102.724
77	91(342)	8135	371643	345.615

Fig. 18

the number of subsequence	the length of sequence	the number of variables	the number of clauses	execution time
30	31(122)	1307	29747	5.360
45	57(202)	3270	100054	19.711
60	62(248)	4473	169730	48.799
70	75(295)	6169	265495	112.333
77	91(342)	8135	379651	367.433

Fig. 19

the condition considering the overlap of sub-sequences	the length of sequence	the number of variables	the number of clauses	execution time
none	91(342)	8135	371643	345.724
condition 1	74(321)	7609	399727	262.744
conditions 1 and 2	71(313)	7714	427961	308.868

REPLACEMENT SHEET

Fig. 20

the length of sequence	the number of subsequence	the number of variables	the number of clauses	execution time
74	77	7609	399727	262. 744
76		7819	410857	207. 930
80		8239	433117	214. 773
90		9289	488767	267. 234
100		10339	544417	324. 324